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10/625,167	07/22/2003	Leonard N. Schiff	000324 /QUALP802USA	8009

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EXAMINER	
DEAN, RAYMOND S	

ART UNIT	PAPER NUMBER
2618	

NOTIFICATION DATE	DELIVERY MODE
10/14/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/625,167	SCHIFF ET AL.	
	Examiner	Art Unit	
	RAYMOND S. DEAN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,6-9,11,12,14-21,25-29,32-38,41-49,52,53 and 55-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21,25-29 and 32-37* is/are allowed.

6)☒ Claim(s) *1,4,6-9,11,12,14-20,38 and 41-48* is/are rejected.

7)☒ Claim(s) *49,52,53 and 55-59* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed August 16, 2010 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with Applicants' assertion that the terminal of Patterson does not adjust a data rate for a message sent from the terminal through the return link based on the change in the return link signal quality without changing link power levels and the interference relationship among the plurality of terminals. The terminal and gateway of Patterson, as previously stated and detailed in the Office Action dated July 15, 2008, use the MAC layer control protocol to change or adjust the data rate (See Section 0101). Furthermore the terminals can operate at different data rates to account for changes in the radio environment (See Section 0103). In order for said terminals to change data rates there will need to be a changing or adjusting function conducted by said terminals.

The power control of Lapaille, which is based on change in the signal to noise ratio, is dynamic such that the system can adapt to degrades in propagation continuously thus rendering a scenario wherein the identifying of said change in the signal to noise ratio occurs during the transmission and reception of a message.

The Abstract and Sections 0024 – 0027 of Dai teach the feature of adjusting a data rate, at the terminal, based at least in part on a determination made at the terminal to adjust the data rate to correct for degradation of a reverse/return link signal. The

measurement of the beacon signal occurs independent of the transmission and reception of a message thus rendering a scenario wherein the beacon signal is received and the return fallback mode is invoked during the transmission and reception of a message.

Therefore, the combination of Patterson, Lapaille and Dai read on the limitations in question.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 6 – 9, 11, 12, 14, 38, 41 – 44, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Lapaille et al. (US 6,539,214) and in further view of Dai et al. (US 2004/0127158).

Regarding Claims 1 Patterson teaches a method comprising: employing a processor executing computer-readable instructions to perform the following acts: identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101, typical gateways comprise processors that run executable code or

instructions), wherein identifying the change in signal quality comprises identifying a change that has occurred in a the return link from the terminal, and interpreting the change in the link as indicating the change in the return link signal quality (Sections 0101, 0103); receiving a feedback signal at the terminal from the gateway, said feedback signal indicating at least one of the return link quality as measured at the gateway and the change in the return link quality as measured at the gateway (Section 0101, the negotiation of the rate between the terminals and the gateway comprise a feedback signal indicating link quality and change in said link quality); adjusting a data rate, at the terminal, for a message sent from the terminal through the return link based on the change in the return link signal quality without changing link power levels and the interference relationship among the plurality of terminals (Sections: 0100 – 0101, 0103, See Response To Arguments set forth in Office Action dated March 24, 2009).

Patterson does not teach a signal-to-noise ratio and wherein identifying the change in signal quality comprises identifying a change that has occurred in a signal-to-noise ratio for the return link from the terminal, and interpreting the change in the signal-to-noise ratio as indicating the change in the return link signal quality, and adjusting a data rate, at the terminal, based at least in part on a determination made at the terminal to adjust the data rate to correct for degradation of the return link signal, and wherein the identifying the change in the return link signal and the adjusting the data rate are performed during a transmission of and a reception of the message.

Lapaille teaches identifying a change that has occurred in a signal-to-noise ratio for a link and interpreting the change in the signal-to-noise ratio as indicating the

change in the link signal quality (Col. 1 lines 31 – 45, 5 lines 45 – 52). Lapaille further teaches wherein said identifying of said change occurs during the transmission and reception of a message (Col. 1 lines 31 – 45, 5 lines 45 – 52, the power control which is based on change in the signal to noise ratio is dynamic such that the system can adapt to degrades in propagation continuously thus rendering a scenario wherein the identifying of said change in the signal to noise ratio occurs during the transmission and reception of a message).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the signal-to-noise ratio of Lapaille as a means for measuring the link quality as taught by Lapaille.

Dai, which like Patterson, teaches a system wherein terminals adjust their data rates, teaches the feature of adjusting a data rate, at the terminal, based at least in part on a determination made at the terminal to adjust the data rate to correct for degradation of a reverse/return link signal (Abstract, Sections 0024 – 0027). Dai further teaches wherein said adjusting of the data rate occurs during a transmission of and a reception of the message (Abstract, Sections 0024 – 0027, the measurement of the beacon signal occurs independent of the transmission and reception of a message thus rendering a scenario wherein the beacon signal is received and in return fallback mode is invoked during the transmission and reception of a message).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the above feature of Dai in the system of Patterson in view

of Lapaille as an alternative means for achieving the predictable result of adjusting the data rate.

Regarding Claim 38, Patterson teaches an apparatus comprising: a comparator identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); wherein identifying the change in signal quality comprises identifying a change that has occurred in a the return link from the terminal, and interpreting the change in the link as indicating the change in the return link signal quality (Sections 0101, 0103); and a data rate generator adjusting a data rate, at the terminal, for a message sent from the terminal through the return link based on the change in the return link signal quality without changing link power levels and the interference relationship among the plurality of terminals (Sections: 0100 – 0101, 0103, See Response To Arguments set forth in Office Action dated March 24, 2009); wherein the data rate generator receives a feedback signal, at a terminal feedback input from the gateway, said feedback signal indicating at least one of the return link quality as measured at the gateway and the change in the return link quality as measured at the gateway (Section 0101, the negotiation of the rate between the terminals and the gateway comprise a feedback signal indicating link quality and change in said link quality).

Patterson does not teach a signal-to-noise ratio and wherein identifying the change in signal quality comprises identifying a change that has occurred in a signal-

to-noise ratio for the return link from the terminal, and interpreting the change in the signal-to-noise ratio as indicating the change in the return link signal quality, and adjusting a data rate, at the terminal, based at least in part on a determination made at the terminal to adjust the data rate to correct for degradation of the return link signal, and wherein the identifying the change in the return link signal and the adjusting the data rate are performed during a transmission of and a reception of the message.

Lapaille teaches identifying a change that has occurred in a signal-to-noise ratio for a link and interpreting the change in the signal-to-noise ratio as indicating the change in the link signal quality (Col. 1 lines 31 – 45, 5 lines 45 – 52). Lapaille further teaches wherein said identifying of said change occurs during the transmission and reception of a message (Col. 1 lines 31 – 45, 5 lines 45 – 52, the power control which is based on change in the signal to noise ratio is dynamic such that the system can adapt to degrades in propagation continuously thus rendering a scenario wherein the identifying of said change in the signal to noise ratio occurs during the transmission and reception of a message).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the signal-to-noise ratio of Lapaille as a means for measuring the link quality as taught by Lapaille.

Dai, which like Patterson, teaches a system wherein terminals adjust their data rates, teaches the feature of adjusting a data rate, at the terminal, based at least in part on a determination made at the terminal to adjust the data rate to correct for degradation of a reverse/return link signal (Abstract, Sections 0024 – 0027). Dai further

teaches wherein said adjusting of the data rate occurs during a transmission of and a reception of the message (Abstract, Sections 0024 – 0027, the measurement of the beacon signal occurs independent of the transmission and reception of a message thus rendering a scenario wherein the beacon signal is received and in return fallback mode is invoked during the transmission and reception of a message).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the above feature of Dai in the system of Patterson in view of Lapaille as an alternative means for achieving the predictable result of adjusting the data rate.

Regarding Claim 4, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 2. Lapaille further teaches wherein the return link signal-to-noise ratio includes both thermal noise and interference (Col. 1 lines 31 – 45, 5 lines 45 – 52, typical noise in a radio environment comprises interference and thermal noise).

Regarding Claims 6, 41, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claims 1, 38. Patterson further teaches measuring a forward link quality at the terminal for a forward link from the gateway through the satellite to the terminal; and approximating the return link quality at the gateway based on the forward link quality (Sections: 0101, 0103, the link conditions include the condition or quality of the forward link).

Regarding Claims 7, 42, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claims 1, 38. Patterson further teaches

reducing the data rate if the return link quality has fallen below a first threshold; and increasing the data rate if the return link quality has risen above a second threshold (Sections: 0101, 0103).

Regarding Claim 8, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 1. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claim 9, Patterson in view of Lapaille and in further view of Dao teaches all of the claimed limitations recited in Claim 2. Patterson further teaches adjusting the data rate to one of a set of discrete data-rate-to-carrier-bandwidth ratios (Sections: 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio).

Regarding Claim 43, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 38. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claim 11, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 1. Patterson further teaches applying a higher coding rate to bits of the message to increase the data rate; and applying a lower coding rate to bits of the message to reduce the data rate (Section 0101).

Regarding Claim 12, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 11. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claim 14, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 1. Patterson further teaches code division multiple access (CDMA) channel (Section 0100).

Regarding Claim 44, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 38. Patterson further teaches encoding a bit of the message at a higher coding rate to reduce the data rate; and encode a bit of the message at a lower coding rate to increase the data rate (Section 0101).

Regarding Claim 48, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 38. Patterson further teaches comparing a current data-rate-to-bandwidth ratio for the message to a threshold data-

rate-to-bandwidth ratio (Sections: 0100 – 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio, in order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold).

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Lapaille et al. (US 6,539,214) in view of Dai et al. (US 2004/0127158), as applied to Claim 1 above, and further in view of Hogberg et al. (US 6,198,730).

Regarding Claim 17, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claims 1, 21. Patterson further teaches a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson in view of Lapaille and in further view of Dai does not teach initiating the message at a random point within a particular messaging time slot.

Hogberg teaches a messaging time slot among a plurality of time slots in each of a series of time frames, the method further comprising initiating the message at a random point within a particular messaging time slot (Column 4 lines 5 – 9, the CDMA

time slots are the messaging time slots, said time slots allow initiation of messages at random points within said time slots).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the TD-CDMA air interface as an alternative means for supporting multiple subscribers as taught by Hogberg.

5. Claims 15 – 16, 18 – 20, 45 – 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Lapaille et al. (US 6,539,214) in view of Dai et al. (US 2004/0127158), as applied to Claims 1, 38 above, and further in view of Xie et al. (US 6,781,978).

Regarding Claims 15, 45, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claims 1, 38. Patterson further teaches a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson in view of Lapaille and in further view of Dai does not teach suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame.

Xie teaches suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson in view of Lapaille and in further view of Gopalakrishnan with the features of Xie for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Regarding Claim 16, Patterson in view of Lapaille in view of Dai and in further view of Xie teaches all of the claimed limitations recited in Claim 15. Xie further teaches resuming the message at a beginning of the subsequent messaging time slot in the subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

Regarding Claims 18, 46, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claims 1, 38. Patterson further teaches wherein the return link comprises a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson in view of Lapaille and in further view of Dai does not teach determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete.

Xie teaches determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson in view of Lapaille and in further

view of Dai with the features of Xie for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Regarding Claims 19, 47, Patterson in view of Lapaille in view of Dai and in further view of Xie teaches all of the claimed limitations recited in Claims 18, 38. Xie further teaches comparing a duration of the message at the current data rate to a length threshold, said length threshold comprising the particular number of durations (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

Regarding Claim 20, Patterson in view of Lapaille and in further view of Dai teaches all of the claimed limitations recited in Claim 18. Patterson further teaches comparing a current data-rate-to-bandwidth ratio for the message to a threshold data-rate-to-bandwidth ratio (Sections: 0100 – 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio, in order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold).

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter:

Claim 49 and its corresponding dependent claims are allowable for the same reasons set forth in the Office Action dated June 11, 2009.

The prior art of record fails to teach or render obvious: means for approximating the signal-to-noise ratio for the return link at the gateway based on the forward link signal-to-noise ratio.

Therefore Claim 21 and its corresponding dependent claims are allowable.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAYMOND S. DEAN whose telephone number is (571)272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raymond S Dean/
Examiner, Art Unit 2618
Raymond S. Dean
October 7, 2010